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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,462	12/26/2001	David P. Bour	D/99241QD	4171

7590 07/20/2004

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Rochester, NY 14644

EXAMINER
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MULPURI, SAVITRI

ART UNIT	PAPER NUMBER
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2812

DATE MAILED: 07/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/025,462

Applicant(s)

BOUR ET AL.

Examiner

Savitri Mulpuri

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

This action is response to the applicant's communication amending claims, filed on 8/1/2004.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 11, 16, 21-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayashi et al (US 6,319,742)

Hayashi teaches forming a ridge from cladding layer, active layer, laterally growing buried layer and forming second buried layer contact the ridge guiding surface providing index guiding in the ridge structure. Hayashi further teach forming ridge with reactive ion etch or ion beam etching. Hayashi also teaches forming opening in the buried layer and forming contact in the opening. (see Fig.6 and related description, col.3, lines 14-26, co. 16, lines 54-62).

Claims 11,14,16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Jie et al (US 6,287,884).

Jie et al teaches forming index-guided light emitting device by forming a ridge structure from lower cladding layer, multiple quantum well active layer and upper cladding layer; forming p-type and n-type buried layers "8,9" layer on lateral sides of the ridge with opening on the top of the ridge and forming additional InP layer"10' as a contact( 2A and related description)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 11, 14, 16-18 are rejected under 35 U.S.C. 102(a) as being anticipated by Kume et al.

Kume et al also teaches forming light emitting device by forming lower cladding layer, quantum well active layer, upper cladding layer; forming a ridge from above cladding layers and active layers; forming p-type and n-type lower and upper buried layers on the lateral sides of the ridges (see fig 13 A-14 and related description).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kume et al or Jie et al in combination with Bour et al(US 5,509,024).

Nether Kume et al nor Jie et al teach forming tunnel barrier layer. Bour et al teaches forming tunnel barrier layer adjoining multiple quantum well structure. It would have been obvious to one of ordinary skill in the art to form barrier layer to reduce leakage current.

Claims 13,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kume et al or Jie et al in combination with Horino(JP-186404).

Neither Kume et al nor Jie et al teach forming ridge structure oriented along <1100> crystallographic direction. Horino et al teaches ridge oriented in <1100> direction(see abstract). It would have been obvious to one of ordinary skill in the art to modify the inventions of Kume et al or Jie et al for the benefit wafer dicing.

Claims 12, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kume et al or Jie et al in combination with Takhashi(US 4,750,183).

Neither kume et al nor Jie et al does not teach forming super lattice bottom cladding layer. Takahshi et al teaches supper lattice cladding layer. It would have been obvious to one of ordinary skill in the art to use super lattice cladding layer to confine light efficiently in the active layer.

Claims 21-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kume et al or Jie et al in combination with Hayashi et al.

Kume et al or Jie does not teach different etching techniques to form ridge.

Hayashi et al teaches etching ridge by reactive ion or ion beam etching as dry etching (see fig. 6 and co.3, lines 1-32). It would have been obvious to use dry etching with ion etch or into beam etch or plasma etch because dry etching suitable to form ridge as taught by Hayashi et al.

Applicant's arguments with respect to claims 11-34 have been considered but are moot in view of the new ground(s) of rejection.

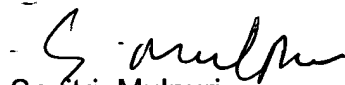
**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Savitri Mulpuri whose telephone number is 571-272-1677. The examiner can normally be reached on Mon-Fri from 8 to 4.30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on 571-272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Savitri Mulpuri  
Primary Examiner  
Art Unit 2812